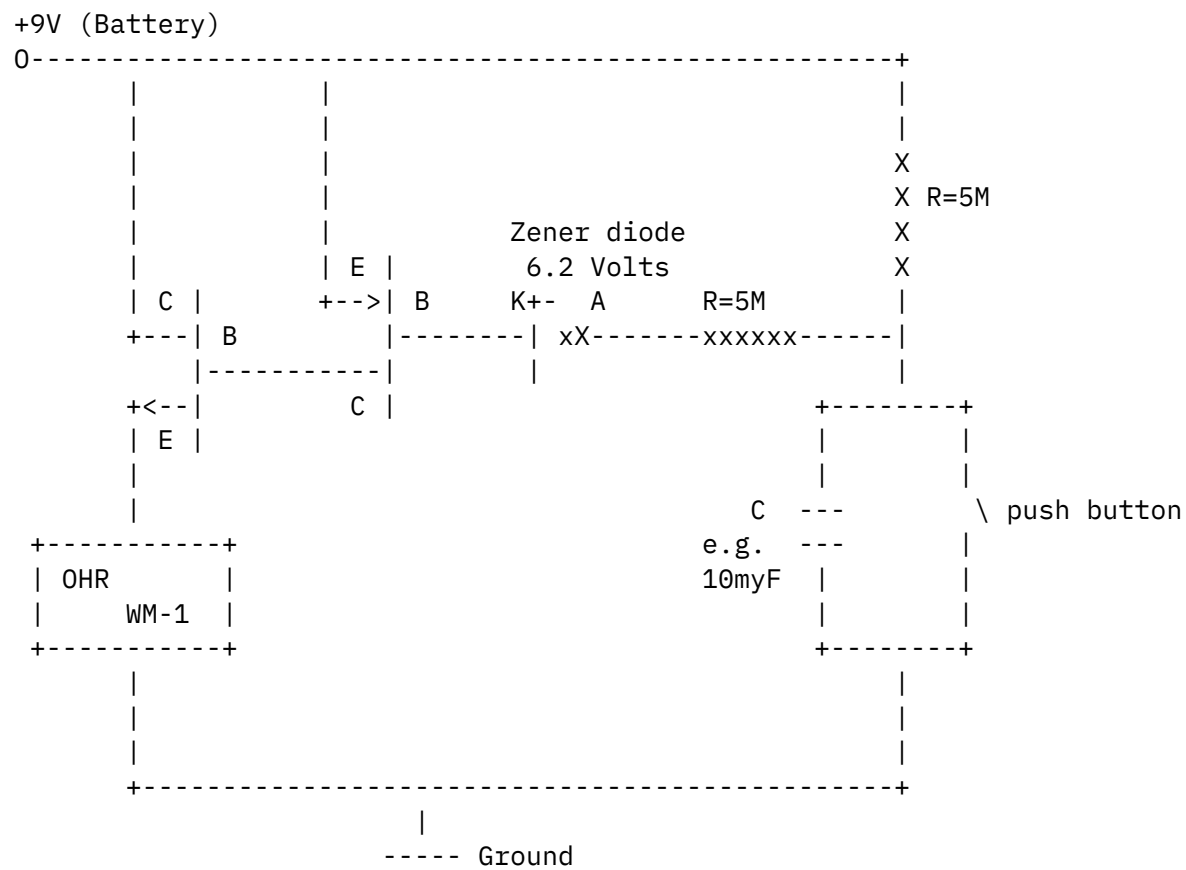
From owner-qrp-l@netcom.com Tue Oct 4 13:25:07 1994
From: "RICHARD HIEBER" <SZ0026@daphne.rrze.uni-erlangen.de>
Date: Tue, 4 Oct 1994 14:52:32 MET
Subject: Add-on for WM-1
Message-Id: <5F7F073E45@daphne.rrze.uni-erlangen.de>

Hi gang,

I had a short exchange with somebody from the QRP mailing list some weeks ago. I told him about a little circuitry that I added to my beloved WM-1 wattmeter from Oak Hills Research. The problem was, I forgot to switch it off and drained the battery. If not, I was afraid that I might have forgotten to switch it off and was much too occupied to check the position of the rotary switch.

One day then I decided to install the following circuitry:



My apologies for the very crude design of the ascii drawing. The transistors are bipolar ones, not FETs. I found it incredibly hard to

do this ... must have a closer look at one of the better examples of this art :-)

The essential element in the circuit is the push button which empties the condenser. As long as the condenser gets loaded, the two transistors are giving way to feed the battery voltage to the wattmeter. I am getting a switch-off time of about 4 minutes with a C of 22 or 47 micro Farads (can't remember the right value). In the last minute or so the wattmeter readings are getting inaccurate since the voltage gets cut off gradually, not like with a switch. I've thought about better designs, e.g. with a NE555 (uses too much power standby) or with a low power thyristor (current consumption of the wattmeter is too low), but wasn't successful. Standby consumption is NOT zero: My digital ammeter shows something around 1 micro amp. I think it's tolerable. Time will tell :-)

If anybody else has a better solution or ideas to improve on this one, I'd like to hear about it.

72 & 73 de Richard, DL8MFQ @ DB0SIF.DEU.EU (alias AA8CP)

From owner-qrp-l@netcom.com Tue Oct 4 18:26:19 1994
From: "Warren E. Lewis" <saswel@unx.sas.com>
Message-Id: <199410041849.AA02904@cardamom.unx.sas.com>
Subject: ARCI FALL QSO PARTY CW
Date: Tue, 4 Oct 1994 14:49:22 -0400 (EDT)

Gang,

  Just wondering if anybody from the list is planning on participating in the FALL CW QSO Party this month? I'm planning on a 40 meter only entry with the Norcal40. Also, I was wondering if anyone was interested in a team entry from the QRP list again this year?

  Looking forward to chasing the FOXES this winter. Chuck, great idea!!

    cheers - Warren

--
Warren E. Lewis   saswel@unx.sas.com
Technical Support Division   (919) 677-8001 x6542
SAS Institute Inc.   PP-ASEL
Cary, NC   KD4YRN   DOD#0021

From owner-qrp-l@netcom.com Wed Oct 5 00:03:21 1994
Date: Tue, 4 Oct 1994 19:09:41 -0700 (PDT)
From: Alan Kaul <kaul@netcom.com>
Subject: Lab Results on Norcal 40!!!
Message-Id: <Pine.3.89.9410041926.A22699-0100000@netcom13>

I took the rig into one of the shops at work and hooked it up to
a few of the toys. The results:

1) power output (2sc799 final) as measured on a Motorola R-2000
Communications System Analyzer

2.11 Watts output with 13V power input

2) harmonics and spurs as measured on a HP 8565-A Spectrum Analyzer

second harmonic DOWN 42 dB ((((without any tweaking!
just 'as-built' from Wayne's specs))))
(3rd harmonic, etc., even smaller)

It's a great rig -- here are two of the reasons why.

[<Alan Kaul, W6RCL>] kaul@netcom.com

From owner-qrp-l@netcom.com Tue Oct 4 07:31:59 1994
Message-Id: <199410040810.BAA11265@mail.netcom.com>
From: Charlos Potma <Charlos.Potma@rivm.nl>
Subject: Mitsubishi/NEC 2SC1969 different ? YES !
Date: Tue, 4 Oct 94 8:59:01 GMT

hello all,

on 7 sept I wrote:
+ I'm building a small DSB/CW 40m tranceiver,following an article
+ .....
+ somewhere in Eastern Europe). The desing specifies a 2SC1969
+ as final PA. It produces an output of 200 mW instead of the
+ 1 W specified in the article. I spoke to the designer and he
+ told me that he used a 2SC1969 made by Mitsubishi and that
+ the same type manufactured by NEC (which I used) had a much

+ lower Ft hence the lower output. Could anyone on this list
+ with access to the relevant data verify this ?. I find
+ .....

the same day "John F. Woods" answered:
++ Ah, welcome to the world of transistors.
++
++ With standardized transistors, what frequently happens is that a manufacturer
++ who decides to offer a new transistor type may just look at the current
inventory
++ to find a transistor that meets the published specs. NEC's transistor (with
++ the lower Ft) may be closer to the archetypal specs of the 2SC1969 type, and
++ Mitsubishi's may just be some transistor they had on the assembly line that
++ had at least the minimum gain at the design frequency of the 2SC1969 type, no
++ .....

I can now confirm this...
Last week I bought a Mitsubishi 2SC1969. Yesterday I replaced the NEC 2SC1969
with the one from Mitsubishi. CW output increased from 200mW to 2 Watts!.
And the output seemed clean on the scope.

73, PA3CKR, Charlos Potma
charlos@rivm.nl

From owner-qrp-l@netcom.com Tue Oct 4 15:45:20 1994
Message-Id: <j431349@pro-freedom.van.wa.us>
Date: Tue, 4 Oct 94 08:38:10 PDT
From: bmull@pro-freedom.van.wa.us (Brian Mull)
Subject: Re: My Sierra Arrived Today!

Hi there! I've just recently signed up on this list and don't think I got
the full story on the Sierra. Could I get a few details and a price
including shipping? This coming Saturday I hope to pass the Novice code
segment, and the low dollar high fun description of QRP has me stoked! (The
low dollar part is the most deciding factor for me :-))

ProLine: bmull@pro-freedom.van.wa.us

From owner-qrp-l@netcom.com Tue Oct 4 08:52:55 1994
Message-Id: <n1430860679.12353@duff>
Date: 4 Oct 1994 10:03:50 +0000
From: "Poole, Peter" <Peter.Poole@mcl.co.uk>
Subject: QRP

please subscribe
Peter H Poole

From owner-qrp-l@netcom.com Tue Oct 4 19:47:48 1994
From: K7YHA@aol.com
Message-Id: <9410041346.tn307031@aol.com>
Date: Tue, 04 Oct 94 13:46:54 EDT
Subject: QRP Books---an update

Books have been sent out to EA2SN & Warren Lewis.

I have four copies left. Price is $30 per set, autographed.

For those who don't know: these two volumes are on the OPERATIONAL side of QRP. No construction projects what so ever.
Vol-I is for the beginner. If you have been involved with QRP less than 12 months or are just getting started, this book is for YOU!
Vol-II is for EVERYONE, irrespective of your experience level in QRP. Written by some of the biggest names in low power communication, Vol-II has somehting for everyone. Lots of good advice on how to improve your operating skills and enjoy the hobby.

Send check or money order to: Rich Arland, K7YHA
25 Amherst Ave., Wilkes-Barre, PA 18702.

72 Rich

From owner-qrp-l@netcom.com Tue Oct 4 02:39:12 1994
Date: Mon, 3 Oct 94 16:14:55 PDT
From: dh@deneb.csustan.edu (Doug Hendricks)
Message-Id: <9410032314.AA18340@deneb.csustan.edu>
Subject: QRPp Renewals.

I recently sent a letter to everyone who needs to renew their dues. Because of cross over in mailing etc. some of you have already sent in your dues. If so, ignore the the letter. It is that simple. If you sent it in and got a letter, send me an email message to be sure, but don't worry about it. We will take your word for it. 72, Doug, KI6DS

From owner-qrp-l@netcom.com Wed Oct 5 00:08:06 1994
Date: Tue, 4 Oct 1994 09:58:40 +0800
From: Raymond.Anderson@EBay.Sun.COM (Ray Anderson)
Message-Id: <9410041658.AA07317@uranium.EBay.Sun.COM>
Subject: Quadrature Generation and the INET Project

A few comments on digital quadrature generators:

I have been looking at divide by 4 ring counter implementations of a digital quadrature generation circuit to be used as part of the VFO module in the INET radio project.

Initally there were a couple of things that drew my attention to this circuit, one being the broadband nature of the device (no band specific L's, C's or R's), and two being its ability to provide very precise quadrature output. Recently it was brought to my attention that several experimenters have shown the necessity of providing some means of phase adjustment to make up for the non-ideal characteristics of the mixers, unequal board and wiring path lengths etc. After contemplating the question of adjustability for a while, I arrived at a couple of possible means of implementation, neither of which I particularly care for.

One means of providing phase adjustability would be by providing selectable digital delay elements in the I and Q output paths. For example, suppose one used logic gates that had the equivalent of 1/2 degree delay. If, say, 4 of these were placed in the I path to provide 2 degrees delay, then another set of these delay elements that were selectable by way of a digital mux circuit could be place in the Q path. Then if the mux were set to alllow 4 gates worth of delay (for the moment neglecting the delay of the mux to simplify the description) the delay would be equal in both paths and the 90 quadrature would be maintained. By selecting more or less delay in the Q path by means of the mux, the output phase relationship could be varied plus or minus a couple of degrees about the quadrature point.

There are at least two down sides to the above scheme: First, the adjustability is in finite phase steps, and if the correct phase required for optimum system performance is not achieved at one of the finite steps, then some system degradation relative to optimum will be experienced. This can be minimized by using logic gates with smaller delays to effect smaller phase increments, but this will reduce the adjustment range unless the circuit complexity is increased to allow the inclusion of more gate delays. Second, the phase adjustment range will not be the same for all bands. For example, if the circuit provided 1/2 degree per step on 40 meters, it would provide only 1 degree per step on 80 meters. Conversely on higher bands, though the resolution would be greater, the range would be reduced.

Another means of achieving adjustability would be provide either an LC or RC network at the I and or Q output to effect a couple of degrees of adjustability, though this would be band specific (different component values would be required for each band) and the effect of the networks would not be equal across any particular band, (if you optimized it at 7.1 MHz, performance could suffer at 7.0 and 7.2)

I haven't analyzed how much the degradation would be, but just the problem with being band specific makes this solution unattractive for a multiband module.

There is another implementation of the digital quadrature generator which utilizes a 2X clock instead of a 4X clock to drive the circuit. This circuit was published in an app note by Proxim Corp., amongst other places. It is comprised of 2 D flip-flops and 2 XOR gates. The main problem I first saw with this circuit was that the generation of accurate quadrature output depends on the circuit being driven with a signal with exactly 50% duty cycle. STOP! Is this a problem? What happens if the drive signal has more or less that 50% duty cycle?? The phase of the output I and Q signals varies +/- some amount from quadrature. In other words the output phase relationship may be trimmed by adjusting the duty cycle of the drive signal, which is fairly trivial to achieve.

What's the down side? I think that the stability of the duty cycle may vary over temperature and over frequency if the output level of the VFO isn't constant from one end of the band to the other. Also, adjustment would definitely be required from band to band. What to do ???

Over the past several (multiple several in fact) years there has been a scheme tucked away in the ARRL handbook in the section of phasing SSB where they show a phase locked loop that is a bit different than most PLL's. The phase detector's inputs are driven by the I and Q signals at the output of a quadrature network. An exclusive-or phase detector is used such that quadrature signals at the input of the phase detector indicate zero error condition. The resulting error signal which results from the deviation from quadrature is applied to variable elements (varicaps) in an LC quadrature network instead of a VFO. So the phase is held constant by the loop. This scheme had the problem that it was band specific due to the LC quadrature generation network. SO, pull out the ARRL LC quadrature network and pop in the 2X digital quadrature generation circuit described a couple of paragraphs above. Utilize the loop error signal to adjust the duty cycle of the signal driving the dividers and voila' we have a stable yet adjustable source of quadrature RF to drive the R2 and/or T2 with. Phase adjustability is achieved by applying a DC offset to the reference input of the loop amp. Stability would depend of the stability of the DC offset voltage which can be very good and temperature compensated. The circuit would have no frequency dependent components in it which means that it should work on all bands. The duty cycle adjustment could be effected by varying the reference voltage on a differential pair or a high-speed comparator.

So it would appear we may be able to use a perceived weakness in a circuit (the dependence of 50% duty cycle) to our advantage to achieve adjustability.

I'll try and post a Postcript schematic of the proposed scheme on the ftp site in a couple of days. I'm going to do some SPICE analysis's to evaluate the details, but I think the above scheme may be a viable option that would be stable, adjustable, broadband, and not too complicated.

Comments, pro or con or otherwise solicited. Do you see any pitfalls? Am I missing something? Improvements?

Ray Anderson WB6TPU
raymonda@uranium.ebay.sun.com

From owner-qrp-l@netcom.com Tue Oct 4 04:07:05 1994
From: rohrwerk@holonet.net
Date: Mon, 3 Oct 1994 22:20:55 -0700
Message-Id: <199410040520.WAA03419@holonet.net>
Subject: Re: R2 filters

david@pitvax.xx.rmit.edu.au wrote:

> The 80m Rx. uses op-amp active filters which I _used_ to think worked
> well! The difference in the R2's filters is dramatic - tuning through
> a carrier there is no low frequency rumble as you approach zero beat,
> on the high end the note starts to diminish, then completely
> disappears.
>
> By comparison, the active filters don't have the dramatic roll off and
> carriers whistle up through the audio range before they are lost.

Yes, the amazing analog filter! Miraculous, isn't it?

> Another noticeable difference is that static crashes seem to have a
> lot less energy through the R2's filters.

I notice this too -- much better listening in the presence of static. Probably a combination of little ringing, and the low distortion, harmonic AND intermodulation.

> A comparison with my FT101B
> receiver was interesting - the 101B seemed to resolve weak DX on the
> 75m DX window better than the DC Rx. - surprising considering the
> problems the 101B has. I can only put it down to the DC Rx. receiving
> noise on both sidebands so having a worse S/N ratio on weak signals.

Hey, you're not even using the R2's front end yet! Just wait... even the R2 without a phasing network will probably do better.

> Next I will get the image reject front end working (on the R2) and

> then do a serious comparison. I suspect then the R2 will outperform
> the 101B.
>
You bet.

There might, however, be some circumstances, like weak DX on a quiet band, where you might need a preamp even on the low bands. Remember the R2 has a pretty high noise figure.

Another matter to consider is that the supplied input splitter is rated at 20 MHz to 600 MHz bandwidth. Rick's only statement is that "it seems to work as low as 7 MHz in this application." Yes -- but is it working as a perfect 50 ohm splitter at these low frequencies? For me, it works fine by ear, even on 80, but the finicky may want to build up a splitter that works better at lower frequencies.

: John Seboldt rohrwerk@holonet.net / The joint chiefs of staff:
: Amateur radio K0JD... / General Confusion and Major Error
: Church of the Annunciation, / ("Car Talk")
: Minneapolis /

-> Alice4Mac 2.3 E QWK Eval:05Mar94

From owner-qrp-l@netcom.com Tue Oct 4 20:07:05 1994
From: jwp@chemical-eng.edinburgh.ac.uk
Date: Tue, 4 Oct 94 19:18:30 BST
Message-Id: <3212.9410041818@aith.chemeng.ed.ac.uk.chemeng.ed.ac.uk>
Subject: subscribe

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to QRP Mailing Group

73 de Jack Ponton, GM0RWU

From owner-qrp-l@netcom.com Tue Oct 4 13:44:16 1994
Date: Tue, 4 Oct 94 10:11:24 -0500
From: adams@chuck.dallas.sgi.com (chuck adams)
Message-Id: <9410041511.AA08661@chuck.dallas.sgi.com>
Subject: The FOX is loose

October 4, 1994

****** Tonite the FOX is N2IPY up in the novice band. *******

Are there others who want to volunteer during any of the weeks
on other nights (Not Saturday or Sunday) than those already

assigned? I don't want to overload the schedule.

I'd like to give up my slot. Then I'd like to get
AA2U, W7EL, W7ZOI, KI6DS, K5FO, AC4HF, NN1G, and other
"high profile" critters to come out of the wood works for
a 'celebrity' hunt, not that these guys really need it,
but it would be fun. :-) :-)

Gang,

Here is fox hunt schedule for this week. Missing dates/times
to be filled in as soon as missing stations finalize their schedules.
Some will not be filled in until the week before or of the week
they have volunteered for due to their work schedule. Remember gang,
this is for fun and these guys volunteered for this duty.

The fox will come on with CQ CQ FOX HUNT de CALL CALL K.
or their rendition of same. Then they will be attacked
by the hoards of screaming QRPers. :-) Propagation has
everything to do with this hunt, thus you may be unfortunate
enough to be out of the zone(s) where they can work you.

WARNING: Times and dates are in UTC, so for 0000Z, it's the
day before here in the USofA.

We tried to get some time in for the novices. Run at your
CW speed and the fox will match it.

name	call	email address	QTH
Chuck Adams	K5FO	adams@sgi.com	Dallas, TX
Bob Easton	N2IPY	bobea@watson.ibm.com	Sloatsburg, NY
Craig LaBarge	WB3GCK	74740.3166@CompuServe.com	Phoenixville, PA
Mark Cronenwett	KA7ULD	mcronenw@pyramid.com	San Jose, CA
Pete Rossi	WA3NNA	rossi@vfl.paramax.com	Newton Square, PA
Bob Cutter	KI0G	bcutter@csn.org	Glenwood Springs, CO
Dave	N9UXU	dave@flowserver.stem.com	Indianapolis, IN
Ron Stark	KU7Y	mswmod@nimbus.sage.unr.edu	Sun Valley, NV
Stan Goldstein	N6ULU	stan@cruzio.com	Watsonville, CA
Clay Wynn	N4AOX	wyn@ornl.gov	Alcoa, TN
Ted Albert	KF8EE	teda@meaddata.com	Loveland, OH

Week of:	FOX	Date	Time(UCT)	Freq
Oct 2nd	N2IPY	Oct 5	0000-0200Z	7.110-7.120

Oct 9th	KF8EE	Oct 10	0100-0300Z	7.040	
Oct 16th	K5FO	Oct 18	0100-0300Z	7.106 30min then 7.040 for 1.5hr	
Oct 23rd	N6ULU				
Oct 30th	N4AOX	Nov 4	0000-0200Z	7.101 then 7.041+	
Nov 6th	WB3GCK	Nov 7	2200-2400Z	7.040	
Nov 13th	N9UXU				
Nov 20th	KI0G				
Nov 27th	WA3NNA				
Dec 4th	N6ULU				
Dec 11th	N2IPY	Dec 11th	0000-0200	7.110	7.120
Dec 18th	KA7ULD	Dec 20th	0400-060	7.040	7.150
Dec 25th	KU7Y				
Jan 1st	K5FO				
Jan 8th	N4AOX	Jan 13	0000-0200Z	7.101+ Primary	7.041+ Alternate
Jan 15th	WB3GCK	Jan 16	2200-2400Z	7.040	
Jan 22nd	KF8EE	Jan 23	0200-0400Z	7.040	
Jan 29th	KI0G				
Feb 5th	KA7ULD	Feb 7	0400-0600Z	7.040-7.150	
Feb 12th	WA3NNA				
Feb 19th	KU7Y				
Feb 26th	N9UXU				

SIG
Chuck Adams K5FO CP-60
adams@sgi.com

From owner-qrp-l@netcom.com Tue Oct 4 21:41:02 1994
From: David Johnson <djohnson@acpub.duke.edu>
Message-Id: <199410042158.RAA01469@carr3.acpub.duke.edu>
Subject: ts50 for qrp ??
Date: Tue, 4 Oct 1994 17:58:19 -0400 (EDT)

Hi Gang !!

I recently acquired a ts50, and want to find a way to
turn down the power reliably, to qrp and qrpp levels.
(From the menu, I can switch down to 10w out, but
of course this is WAY too much power for anyone ever
to use ;-)
at least on bands other than 160 ? haha)

So I wonder if anyone knows of any mods or add-ons

or tricks (other than an outboard attenuator) to
get the power downward, preferably adjustable!
Other rigs like the ts440 can be turned down
through a voltage on an alc line; can this be done
on the ts50 ???

Also, seems activity on 160 cw is really picking up
(or maybe propagation is getting better ;-)
and I am calling cq-ers with my 1w xmtr, but no
bites yet. I don't give up easily though !!

Cheers !

Dave.
--
David W. Johnson
Amateur Extra WA4NID
email: djohnson@acpub.duke.edu
packet WA4NID@KB4WGA.NC.USA.NA

Power is no substitute for skill
QRP ARCI 6546
G-QRP 4864
NorCal 355